PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing *(day/month/year)*	30 JUNE 2005 (30.06.2005)
Applicant's or agent's file reference 005-640002	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/KR2005/000599	04 MARCH 2005 (04.03.2005)	04 MARCH 2004 (04.03.2004)

International Patent Classification (IPC) or both national classification and IPC
IPC7 H04R 7/00

Applicant
MIRAE PLASMA CO., LTD. et al

1. This opinion contains indications relating to the following items:
   - [x] Box No. I Basis of the opinion
   - [ ] Box No. II Priority
   - [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - [ ] Box No. IV Lack of unity of invention
   - [x] Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - [ ] Box No. VI Certain documents cited
   - [ ] Box No. VII Certain defects in the international application
   - [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION
If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR
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Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material
   - ☐ a sequence listing
   - ☐ table(s) related to the sequence listing

   b. format of material
   - ☐ in wirtten format
   - ☐ in computer readable form

   c. time of filing/furnishing
   - ☐ contained in the international application as filed.
   - ☐ filed together with the international application in computer readable form.
   - ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims		YES
	Claims	1-9	NO
Inventive step (IS)	Claims		YES
	Claims	1-9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

2. Citations and explanations :

The following documents are referred to:

D1 EP 0 014 043 A1
D2 JP 58-5100
D3 JP 59-77796
D4 JP 04-326300

D1 discloses a process for making piezo-electric polyvinylidene fluoride (PVDF) film for use as diaphragms for telephone transmitters, includes the steps of (a) stretching the melt-extruded film (1) parallel to the extrusion direction with a stretch ratio of about 4 to 1 at about 120 DEG C to convert it to alpha beta crystalline form, (b) clamping the film between conductive rubber pads (5, 6) to which the polarizing voltage, e.g. 1.3 kv for 12 mu m film is applied. While the voltage is thus applied the film is heated to about 110 DEG C for 130 mins. and cooled to ambient with the polarizing field preset, (c) conductive elastomer electrodes are applied to the film in the desired pattern, and (d) the piezo-electric properties are stabilized by heating the foil to about 90 DEG C for 2 hours.

D2 discloses a driving method for piezoelectric type speaker, to increase the output level picked up from a piezoelectric type speaker, by constituting a simple circuit of a boosting transformer, when a dynamic speaker and the piezoelectric speaker are used together wherein, dynamic speaker 1, a piezoelectric speaker 2, an audio output circuit 3, and a boosting transformer 4 are connected as shown in figure. The primary side of the boosting transformer 4 is connected in parallel with input terminals 1a and 1b of the dynamic speaker 1, and the secondary side is connected in parallel with the input terminal of the piezoelectric speaker 2.

D3 discloses a network circuit(refer to the fig. 1) of a piezoelectric speaker system consists of a piezoelectric tweeter 1 which responds to a high-frequency signal and the piezoelectric speaker 2 which responds to a signal at a lower pressure side than the tweeter 1. One of the speaker terminals, 1a of this tweeter 1 is connected to an input terminal 6 through a resistance 3, and the other speaker terminal 1b is connected to the other input terminal 7; and a resistance 4 is connected between both terminals 1a and 1b. A speaker terminal 2a of the speaker 2 is connected to the terminal 6 through a coil 5, and the other speaker terminal 2b is connected to the terminal 7. Then, the frequency characteristics of the speakers 1 and 2 obtained by the resonance characteristic inherent to the piezoelectric effect are utilized effectively to simplify the network circuit, flattening the frequency characteristics.

D4 discloses a driving circuit for piezoelectric speaker to enable connection to an acoustic signal supplying means in the state of matching the impedance by serially inserting a coil to a piezoelectric element group composed of more than two parallelly connected piezoelectric elements, and connecting the coil through a matching transformer.

The present claims disclose method of manufacturing film speaker using piezoelectric film and sound reproducing equipment with the same, and the subject matter of the claims 1 to 8 is considered to be covered by D1 and D2. The claim 9 describes to adopt capacitor between the speaker unit and matching transformer different from D3 and D4 using resistance and/or inductors however, it is obvious for a person with ordinary knowledge in the field to use reactive components like capacitance or inductance to control frequency response of speaker unit regardless of reactive component types.

Thus the present application does not satisfy the criteria set forth in Article 33(2) and (3) PCT because the subject matter of claims 1 - 9 is not new in respect of prior art as defined in the regulations (Rule 64(1)-(3) PCT) and/or does not involve an inventive step (Rule 65(1)(2) PCT).
Thus the subject matter of claims 1 - 9 is neither novel nor inventive.